

ALGEBRA I FINAL EXAM

A passing score of 49 on this test allows a student to register for geometry.

JUNE 2002

YOU MAY WRITE ON THIS TEST

NOTA means None Of The other Alternatives

1. Solve: $-18x - 72 = -6x$

- A. -6
- B. -3
- C. 3
- D. 6
- E. NOTA

2. Solve: $\frac{x-1}{5} - \frac{x-2}{4} = 1$

- A. -14
- B. 13
- C. 5
- D. -5
- E. NOTA

3. One taxi cab charges \$2.00 plus 75 cents per mile while a second taxi charges 75 cents plus 80 cents per mile. For what length trip would the fee charged by each taxi be the same?

- A. 10
- B. 15
- C. 20
- D. 25
- E. 30

4. Solve: $-\frac{x}{8} - \frac{5}{4} = -\frac{3x}{8}$

- A. $-\frac{5}{8}$
- B. $\frac{5}{8}$
- C. 5
- D. No Numbers
- E. All Numbers

NOTA means None Of The other Alternatives

5. Solve: $.07(18000 - x) + .1x = 1590$

- A. 11,000
- B. 12,000
- C. 13,000
- D. 14,000
- E. 15,000

6. Four times the smallest of three consecutive odd integers is five more than three times the largest. What is the sum of these three consecutive odd integers?

- A. 57
- B. 51
- C. 45
- D. 39
- E. 33

7. Solve for x : $\frac{4}{3x-9} = \frac{3}{x+7}$

- A. 5
- B. 11
- C. .2
- D. 3.2
- E. NOTA

8. Solve: $\frac{-24}{6-x} = 3$

- A. All numbers
- B. No solutions
- C. -2
- D. 14
- E. 42

NOTA means None Of The other Alternatives

9. Solve for y in terms of x : $xy + 5 = 8$

- A. $y = \frac{13}{x}$
- B. $y = \frac{8}{x} - 5$
- C. $y = \frac{3}{x}$
- D. $y = 3 - x$
- E. NOTA

10. The length of a rectangle is 6 less than three times the width. The perimeter of the rectangle is 60. What is the area?

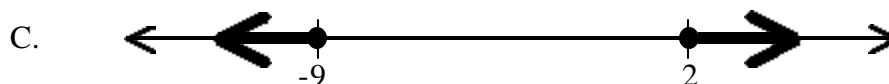
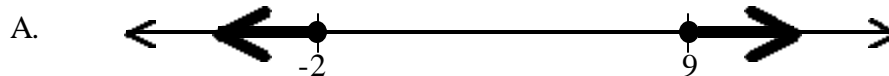
- A. 81.5
- B. 125
- C. 189
- D. 717.75
- E. NOTA

11. Solve: $|6 - 4x| = 14$

- A. $-2, -5$
- B. $2, -5$
- C. $-2, 5$
- D. $2, 5$
- E. NOTA

NOTA means None Of The other Alternatives

12. Graph the solution set of the following equation: $|2x - 7| \geq 11$



E. NOTA

13. Solve the following: $|7 - x| \leq 11$

- A. $-11 \leq x \leq 11$
- B. $-18 \leq x \leq 18$
- C. $-4 \leq x \leq 18$
- D. $-18 \leq x \leq 4$
- E. NOTA

14. Name the property of algebra which is illustrated by: $c(x + y) = c(x + y)$

- A. The Reflexive Property of Equality
- B. The Symmetric Property of Equality
- C. The Commutative Property of Multiplication
- D. The Associative Property of Addition
- E. The Distributive Property of Multiplication over Addition

NOTA means None Of The other Alternatives

15. Name the property of algebra which is illustrated by: $8(x + a) = 8(a + x)$

- A. Distributive Property of Multiplication over Addition
- B. The Reflexive Property of Equality
- C. The Commutative Property of Multiplication
- D. The Commutative Property of Addition
- E. The Associative Property of Multiplication

16. Solve: $6x - 4(8 - 3x) = 6x - 20$

- A. -1
- B. $-\frac{6}{7}$
- C. $\frac{6}{7}$
- D. 1
- E. No solution

17. Solve: $12x - 24 = 48 + 12x$

- A. All numbers
- B. No solutions
- C. 0
- D. 3
- E. NOTA

NOTA means None Of The other Alternatives

18. Solve: $\frac{2}{x} + \frac{3}{2x} - \frac{1}{2} = \frac{2}{3}$

- A. 3
- B. $\frac{23}{3}$
- C. 5
- D. $\frac{17}{3}$
- E. NOTA

19. If Diana can finish a job in 8 hours and Natalie can do a job in 10 hours what fraction of the job would be completed if they worked together for 2 hours?

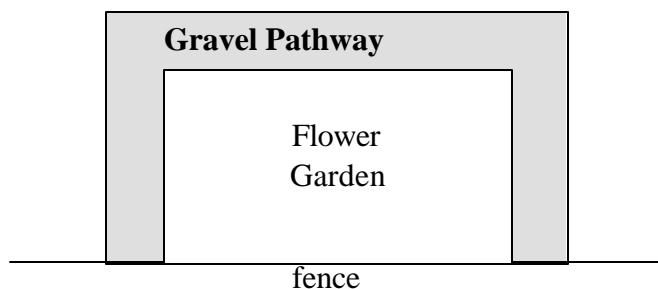
- A. $\frac{1}{2}$
- B. $\frac{9}{20}$
- C. $\frac{2}{5}$
- D. $\frac{3}{10}$
- E. $\frac{1}{4}$

20. Simplify: $5x - 3(2x - 4y) - 5(3x + 4y)$

- A. $-16x - 8y$
- B. $-16x - 32y$
- C. $-14x - 16y$
- D. $-14x - 32y$
- E. NOTA

NOTA means None Of The other Alternatives

21. Lorraine has a rectangular flower garden which is five feet longer than it is wide. The longer side of the flower garden is along a fence, as shown in the picture. The flower garden is surrounded on three sides by a gravel walkway, which is 2 feet wide. If the area of the gravel walkway is 72 square feet, then what is the area of the flower garden?



- A. 263.25 ft^2
B. 144 ft^2
C. 126 ft^2
D. 60.75 ft^2
E. 72 ft^2
22. What is the slope of the line passing through $(5, -6)$ and $(8, 3)$?
- A. $\frac{1}{3}$
B. $-\frac{9}{13}$
C. 1
D. -3
E. NOTA

NOTA means None Of The other Alternatives

23. Which of the following is the equation of the line passing through $(-8, 24)$ and $(4, 0)$?
- A. $y = -6x + 4$
 - B. $y = -6x + 24$
 - C. $y = -2x + 4$
 - D. $y = -2x + 8$
 - E. NOTA
24. What is the y -intercept of the line passing through $(18, -4)$ with a slope of $-\frac{1}{2}$?
- A. -5
 - B. -4
 - C. 5
 - D. 18
 - E. NOTA
25. Which of the following equations passes through $(-8, 10)$ and has a slope of $-\frac{3}{4}$?
- A. $4x + 3y = -2$
 - B. $3x + 4y = 16$
 - C. $3x - 4y = -64$
 - D. $4x - 3y = -62$
 - E. NOTA
26. If a line passes through $(5, 15)$ and $(-10, 27)$, which of the following will also lie on the same line?
- A. $(55, -49)$
 - B. $(55, -36)$
 - C. $(55, -25)$
 - D. $(55, 8)$
 - E. $(55, 36)$

NOTA means None Of The other Alternatives

27. Simplify: $-4xy^3\left(-3xy - \frac{5x}{y}\right)$

- A. $-12xy^3 - 20x^2y^2$
- B. $12xy^3 + 20x^2y^{-3}$
- C. $12x^2y^4 - 20x^2y^2$
- D. $12x^2y^4 + 20x^2y^2$
- E. NOTA

28. Simplify: $\frac{48x^{18}}{8x^6}$

- A. $6x^3$
- B. $40x^3$
- C. $6x^{12}$
- D. $40x^{12}$
- E. NOTA

29. Simplify: $(4-3\sqrt{5})(8+6\sqrt{5})$

- A. 122
- B. -58
- C. $122 - 24\sqrt{5}$
- D. $-58 - 24\sqrt{5}$
- E. NOTA

NOTA means None Of The other Alternatives

30. Which of the following equations best represents the relationship?

$$\begin{array}{r}
 x^2 - x - 4 \\
 x-3 \overline{) x^3 - 4x^2 - x + 17} \\
 \underline{x^3 - 3x^2} \\
 -x^2 - x \\
 \underline{-x^2 + 3x} \\
 -4x + 17 \\
 \underline{-4x + 12} \\
 5
 \end{array}$$

- A. $(x-3)(x^2 - x - 4) = x^3 - 4x^2 - x + 22$
- B. $(x-3)(x^2 - x - 4) + 5 = x^3 - 4x^2 - x + 17$
- C. $(x-3)(x^2 - x - 4) = x^3 - 4x^2 - x + 17$
- D. $(x-3)(x^2 - x - 4)5 = x^3 - 4x^2 - x + 17$
- E. $(x-3)(x^2 - x - 4 + 5) = x^3 - 4x^2 - x + 7$
31. Expand: $(4x-2)(5x+4)$

- A. $20x^2 - 2x - 8$
- B. $20x^2 - 6x - 8$
- C. $20x^2 - 18x - 8$
- D. $20x^2 - 26x - 8$
- E. NOTA

NOTA means None Of The other Alternatives

32. Expand: $(7x-3y)^2$

- A. $49x^2 + 9y^2$
- B. $49x^2 - 9y^2$
- C. $49x^2 - 21xy + 9y^2$
- D. $49x^2 - 42xy + 9y^2$
- E. NOTA

33. Expand: $(x-2)(x^2-2x-4)$

- A. $x^3 - 8$
- B. $x^3 + 8$
- C. $x^3 - 4x^2 + 8$
- D. $x^3 - 4x + 8$
- E. NOTA

34. Factor completely: $x^2 - 6x - 91$

- A. $(x-17)(x+11)$
- B. $(x-13)(x+7)$
- C. $(x-13)(x-7)$
- D. $(x-17)(x-7)$
- E. NOTA

NOTA means None Of The other Alternatives

35. Factor completely: $6x^2 - 10x - 9xy + 15y$

- A. $(2x - 3y)(3x - 5)$
- B. $(2x + 15)(3x - y)$
- C. $(2x - 3y)(3x + 5)$
- D. $(2x + 15)(3x + y)$
- E. NOTA

36. Factor completely: $12x^2 - 14x - 40$

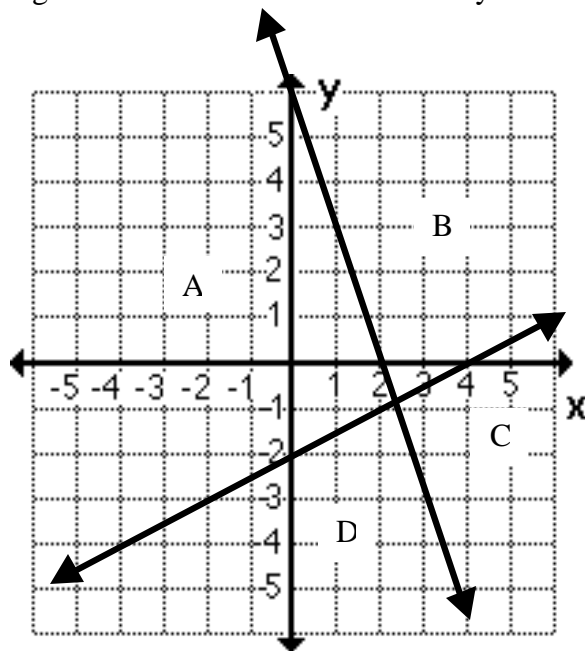
- A. $2(2x + 5)(3x - 4)$
- B. $2(2x - 4)(3x - 5)$
- C. $2(2x - 5)(3x + 4)$
- D. $2(2x + 4)(3x - 5)$
- E. NOTA

37. Which of the following is the equation of a line passing through $(-3, 2)$ and parallel to the graph of $4x - 3y = 24$?

- A. $y = \frac{4}{3}x + 6$
- B. $y = \frac{4}{3}x - 18$
- C. $y = -\frac{3}{4}x - 8$
- D. $y = -\frac{3}{4}x - \frac{1}{4}$
- E. $y = -\frac{3}{4}x - 2$

NOTA means None Of The other Alternatives

38. Which region would be the solution to the system
- $$\begin{aligned} 3x + y &\geq 6 \\ x - 2y &\leq 4 \end{aligned}$$



- A. A
B. B
C. C
D. D
E. NOTA
39. Solve the system of linear equation:
- $$\begin{aligned} 2x - 5y &= 14 \\ 3x + 2y &= 40 \end{aligned}$$
- What is the value of xy ?

- A. 18
B. 24
C. -18
D. -36
E. NOTA

NOTA means None Of The other Alternatives

40. Simplify: $\frac{x^2 - 2x - 24}{x + 4}$

- A. x^2
- B. $x^2 - 2x - 6$
- C. x
- D. $x - 6$
- E. NOTA

41. Simplify: $\frac{x-2}{4} + \frac{x+1}{6}$

- A. $\frac{2x-1}{10}$
- B. $\frac{2x-1}{12}$
- C. $\frac{10x-8}{12}$
- D. $\frac{5x-4}{12}$
- E. NOTA

42. Simplify: $\frac{x^2 - 2x - 24}{36 - x^2} \div \frac{x^2 - x - 20}{x^2 + 3x - 18}$

- A. $\frac{3-x}{x-5}$
- B. $\frac{x-3}{x-5}$
- C. $\frac{3}{5}$
- D. $\frac{108}{5}$
- E. NOTA

NOTA means None Of The other Alternatives

43. Solve for x : $\frac{1}{2}(x-3)(4x+2)=0$

A. $\frac{1}{2}, -\frac{1}{2}, 3$

B. $0, \frac{1}{2}, -3$

C. $\frac{1}{2}, -3$

D. $-\frac{1}{2}, 3$

E. NOTA

44. Solve for x : $\frac{x+4}{2x+6} = \frac{x-1}{x+3}$

A. $-6, -3$

B. $-6, 3$

C. $6, 3$

D. 6

E. -3

45. Solve for x : $x^2 - 2x - 48 = 0$

A. $-8, 6$

B. $8, -6$

C. $4, -12$

D. $-4, 12$

E. NOTA

NOTA means None Of The other Alternatives

46. Solve for x : $x^2 = 25x$
- A. 25
 - B. 5, -5
 - C. 5
 - D. 25, 0
 - E. NOTA
47. How many liters of pure acid should be mixed with 70 liters of a 20% acid solution to make a 30% acid solution?
- A. 10
 - B. 20
 - C. 30
 - D. 40
 - E. NOTA
48. $x^2 + 11x + k$ is a trinomial which is the square of a binomial. What is the value of k ?
- A. 11
 - B. 121
 - C. $\frac{11}{2}$
 - D. $\frac{121}{4}$
 - E. NOTA

NOTA means None Of The other Alternatives

49. Solve for x : $x^2 - 6x + 4 = 0$

- A. $-3 \pm 2\sqrt{5}$
- B. $6 \pm \sqrt{5}$
- C. $3 \pm \sqrt{5}$
- D. $-3 \pm \sqrt{5}$
- E. NOTA

50. Solve for x : $9x^2 - 6x - 2 = 0$

- A. $\frac{1 \pm \sqrt{3}}{3}$
- B. $\frac{6 \pm \sqrt{3}}{3}$
- C. $\frac{1 \pm 6\sqrt{3}}{3}$
- D. $0, \frac{2}{3}$
- E. NOTA

51. Squaring both sides of an equation is one step in solving radical equations. If this method was used to solve the equation: $2 - \sqrt{2 - x} = x + 6$, then which of the following quadratics would be the result of the squaring process?

- A. $x^2 + 8x + 16 = 0$
- B. $x^2 + 7x + 18 = 0$
- C. $x^2 + 9x + 18 = 0$
- D. $x^2 + 9x + 14 = 0$
- E. $x^2 + 7x + 14 = 0$

NOTA means None Of The other Alternatives

52. Simplify: $\sqrt{5} - \sqrt{\frac{1}{5}}$

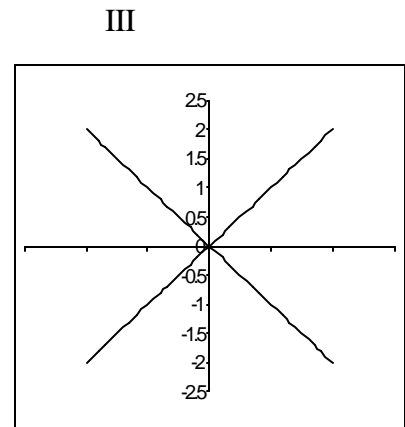
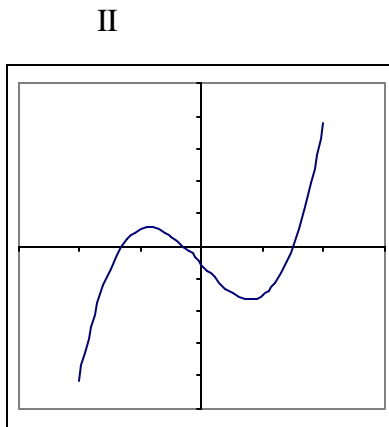
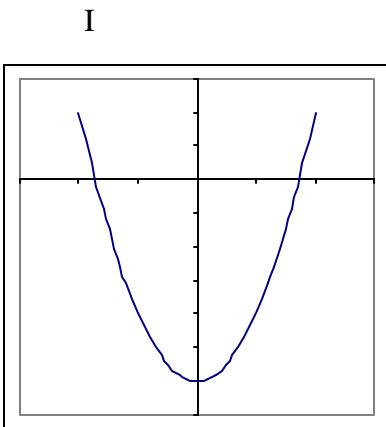
- A. 1
- B. $\frac{4\sqrt{5}}{5}$
- C. $\frac{1}{5}$
- D. $\frac{4}{5}$
- E. NOTA

53. If $f(x) = \frac{3}{5}x - 5$ then what is the value of $f(30)$?

- A. 12
- B. 13
- C. 14
- D. 15
- E. 16

NOTA means None Of The other Alternatives

54. Which of the following is a function?



- A. I only
- B. I and II
- C. I and III
- D. II and III
- E. I, II, and III

55. Which of the following is the reciprocal of $\sqrt{2}$?

- A. $\sqrt{2}$
- B. $-\sqrt{2}$
- C. $\frac{2}{\sqrt{2}}$
- D. $\frac{\sqrt{2}}{2}$
- E. NOTA

NOTA means None Of The other Alternatives

56. Simplify: $\sqrt{75} + \sqrt{108} - \sqrt{3}$

- A. $7\sqrt{3}$
- B. $8\sqrt{3}$
- C. $9\sqrt{3}$
- D. $10\sqrt{3}$
- E. NOTA

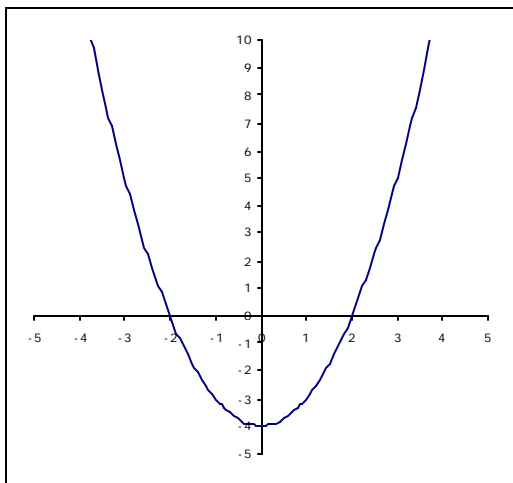
57. What is the y -coordinate of the intersection of the graphs of $2x - 3y = -1$ and $2x + y = 67$?

- A. 17
- B. 19
- C. 21
- D. 23
- E. 25

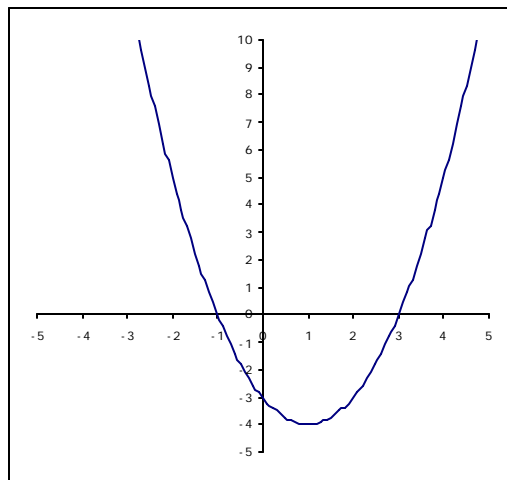
NOTA means None Of The other Alternatives

58. Which of the following is the graph of $f(x) = x^2 - 2x - 3$

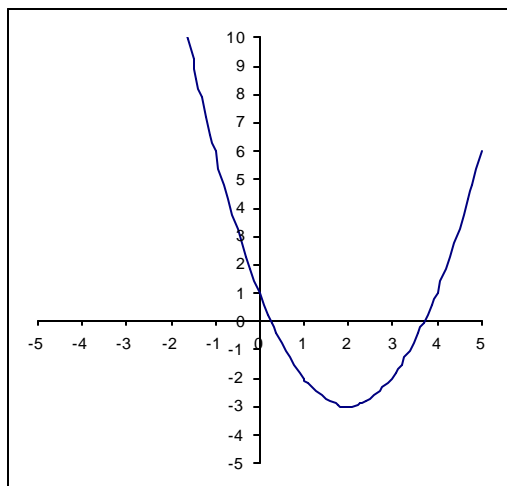
A



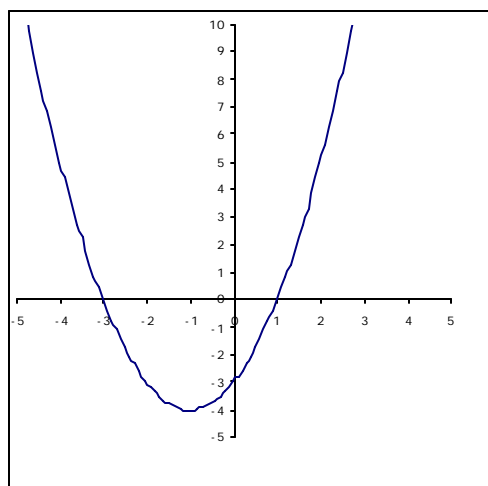
B



C



D



E. NOTA

NOTA means None Of The other Alternatives

59. Simplify: $\frac{x^{-3} \cdot y^4}{x^{-2} \cdot y^{-3}}$

A. $\frac{y^7}{x}$

B. $\frac{y}{x}$

C. xy

D. $\frac{x}{y^7}$

E. $\frac{x}{y}$

60. Simplify: 4^{-2}

A. -16

B. $-\frac{1}{16}$

C. $\frac{1}{16}$

D. 16

E. NOTA

NOTA means None Of The other Alternatives

61. Simplify: $25^{\frac{1}{2}}$

A. $-12\frac{1}{2}$

B. $12\frac{1}{2}$

C. -5

D. 5

E. $\frac{1}{5}$

62. What is the value of $\frac{4x^2y^{-1}-2y}{x+4}$ if $x=-2$ and $y=2$?

A. 2

B. -2

C. 6

D. -18

E. NOTA

63. When we took our boat 18 km downstream, it took 3 hours. Using the same boat it took $4\frac{1}{2}$ hours to return 18 km upstream. What is the speed of the current?

A. $\frac{1}{2}$

B. 1

C. $1\frac{1}{2}$

D. 2

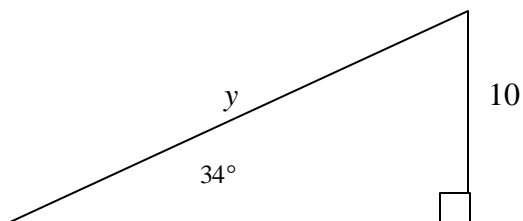
E. NOTA

NOTA means None Of The other Alternatives

64. What are the x -intercepts of the graph of the quadratic function: $y = x^2 - x - 12$?
- A. $4, -3$
 - B. $-4, 3$
 - C. $-12, 1$
 - D. $12, -1$
 - E. NOTA
65. Ten balls numbered 3 to 12 are placed in a bag. One of the balls is chosen at random. What is the probability that it is divisible by 3?
- A. 0
 - B. .1
 - C. .4
 - D. .6
 - E. .7
66. What is the upper quartile of the following data set?
- 5, 5, 5, 6, 7, 8, 9, 10, 11, 11, 12, 13, 15, 15, 15
- A. 15
 - B. 14
 - C. 13
 - D. 12
 - E. 11

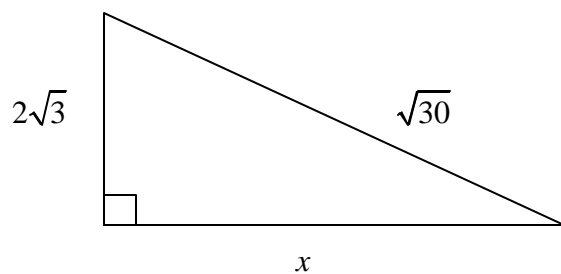
NOTA means None Of The other Alternatives

67. What is the value of y ?



x	$\sin x$	$\cos x$	$\tan x$
34°	.5592	.8290	.6745

- A. 5.592
B. 12.063
C. 14.826
D. 17.883
E. NOTA
68. What is the value of x ?



- A. 18
B. 15
C. $3\sqrt{2}$
D. $2\sqrt{3}$
E. NOTA

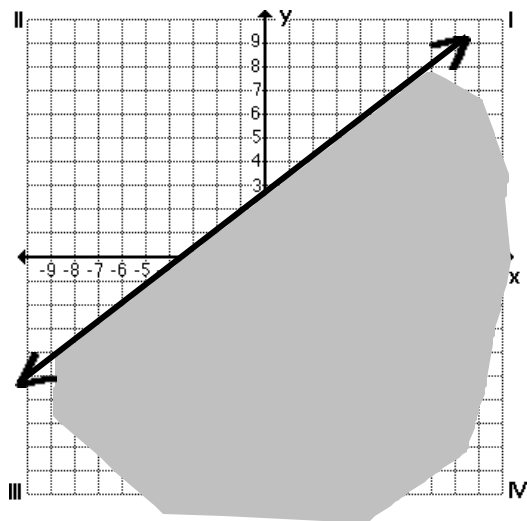
NOTA means None Of The other Alternatives

69. 24 is 6% of what number?

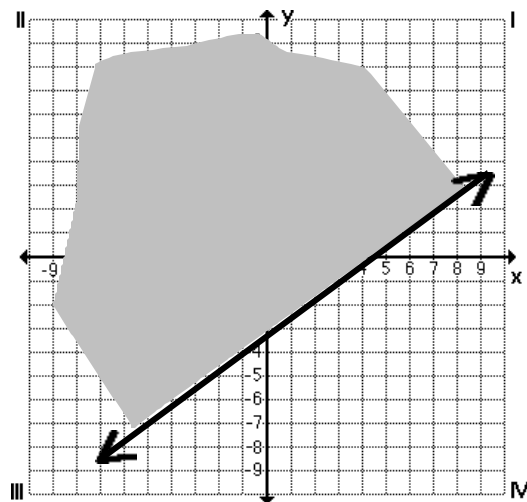
- A. 14.4
- B. 144
- C. 1440
- D. 400
- E. 40

70) Which of the following is the graph of $4x - 3y \leq 12$?

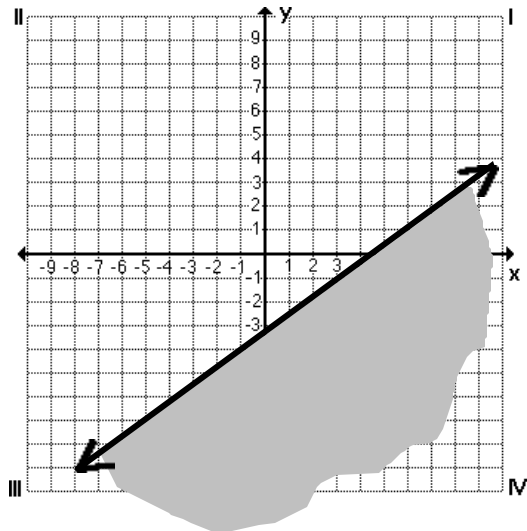
A



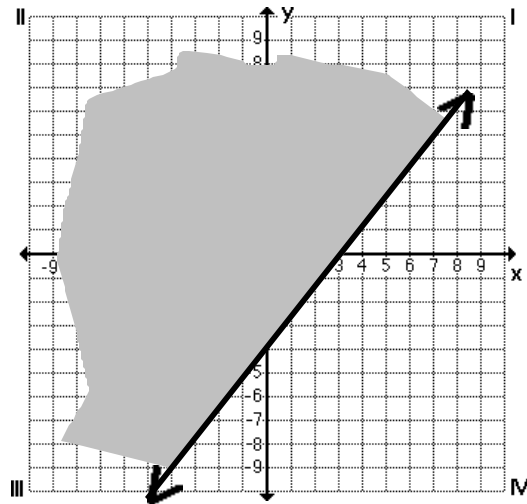
B



C



D



E) NOTA